

## § 179.201-6

Type 316L materials are not required to be postweld heat treated.

(b) Tanks and attachments welded directly thereto, fabricated from ASTM A 240/A 240M (incorporated by reference; *see* §171.7 of this subchapter) Type 304L and Type 316 materials must be tested to demonstrate that they possess the corrosion resistance specified in §179.200-7(d), Footnote 2.

[Amdt. 179-10, 36 FR 21353, Nov. 6, 1971, as amended by Amdt. 179-52, 61 FR 28681, June 5, 1996; 67 FR 51660, Aug. 8, 2002]

## § 179.201-6 Manways and manway closures.

(a) The manway cover for spec. DOT 103ALW, 103DW, 103W, 104W, 111A60-ALW1, 111A60W1, 111A100ALW1, 111A-100W1, 111A100W3, or 111A100W6 must be designed to make it impossible to remove the cover while the interior of the tank is subjected to pressure.

(b) The manway cover for spec. DOT 103BW, 11A60W5, or 111A100W5 must be made of a suitable metal. The top, bottom and edge of manway cover must be acid resistant material covered as prescribed in §179.201-3. Through-bolt holes must be lined with acid resistant material at least one-eighth inch in thickness. Cover made of metal not affected by the lading need not be acid resistant material covered.

(c) The manway ring and cover for spec. DOT-103CW, 103DW, 103EW, 111360W7, or 11A100W6 must be made of the metal and have the same inspection procedures specified in AAR Specifications for Tanks Cars Appendix M, M3.03.

(d) The manway ring for DOT-103 ANW must be made of cast, forged or fabricated nickel and be a good weldable quality in conjunction with the metal of the dome. Manway cover must be made of nickel.

[Amdt. 179-10, 36 FR 21353, Nov. 6, 1971; 66 FR 45186, Aug. 28, 2001]

## § 179.201-8 Sampling device and thermometer well.

(a) Sampling valve and thermometer well are not specification requirements. When used, they must be of approved design, made of metal not subject to rapid deterioration by lading, and must withstand a pressure of 100 psig without leakage. Interior pipes of

## 49 CFR Ch. I (10-1-02 Edition)

the sampling valve must be equipped with excess flow valves of an approved design. Interior pipe of thermometer well must be closed by an approved valve attached close to fitting where it passes through the tank and closed by a screw plug. Other approved arrangements that permit testing thermometer well for leaks without complete removal of the closure may be used.

(b) [Reserved]

[Amdt. 179-10, 36 FR 21348, Nov. 6, 1971, as amended at 66 FR 45390, Aug. 28, 2001]

## § 179.201-9 Gauging device.

A gauging device of an approved design must be applied to permit determining the liquid level of the lading. The gauging device must be made of materials not subject to rapid deterioration by the lading. When the interior pipe of the gauging device provides a means for passage of the lading from the interior to the exterior of the tank, it must be equipped with an excess flow valve of an approved design. If the opening for passage of lading through the gauging device is not more than 0.060 inch diameter an excess flow valve is not required. The gauging device must be provided with a protective housing.

[Amdt. 179-10, 36 FR 21353, Nov. 6, 1971]

## § 179.201-10 Water capacity marking.

(a) Water capacity of the tank in pounds stamped plainly and permanently in letters and figures at least 3/8 inch high into the metal of the tank immediately below the stamped marks specified in §179.200-24(a). This mark shall also be stenciled on the jacket immediately below the dome platform and directly behind or within 3 feet of the right or left side of the ladder, or ladders, if there is a ladder on each side of the tank, in letters and figures at least 1½ inches high as follows:

WATER CAPACITY

000000 Pounds

(b) [Reserved]

## § 179.201-11 Insulation.

(a) Insulation shall be of sufficient thickness so that the thermal conductance at 60 °F. is not more than 0.075

Research and Special Programs Admin., DOT

§ 179.220-7

Btu per hour, per square foot, per degree F. temperature differential.

(b) [Reserved]

§§ 179.202—179.202-22 [Reserved]

**§ 179.220 General specifications applicable to nonpressure tank car tanks consisting of an inner container supported within an outer shell (class DOT-115).**

**§ 179.220-1 Tanks built under these specifications must meet the requirements of §§ 179.220 and 179.221.**

**§ 179.220-3 Type.**

(a) Tanks built under these specifications must consist of an inner container, a support system for the inner container, and an outer shell.

(b) The inner container must be a fusion welded tank of circular cross section with formed heads designed convex outward and must have a manway on top of the tank as prescribed herein. When the inner container is divided into compartments, each compartment must be considered a separate container.

(c) The outer shell must be a fusion welded tank with formed heads designed convex outward.

[Amdt. 179-9, 36 FR 21340, Nov. 6, 1971]

**§ 179.220-4 Insulation.**

The annular space between the inner container and the outer shell must contain an approved insulation material.

[Amdt. 179-9, 36 FR 21340, Nov. 6, 1971]

**§ 179.220-6 Thickness of plates.**

(a) The wall thickness, after forming of the inner container shell and 2:1 ellipsoidal heads must be not less than specified in §179.221-1, or not less than that calculated by the following formula:

$$t = \frac{Pd}{2SE}$$

Where:

$d$  = Inside diameter in inches;

$E$  = 0.9 welded joint efficiency; except  $E=1.0$  for seamless heads;

$P$  = Minimum required bursting pressure in psig;

$S$  = Minimum tensile strength of plate material in p.s.i. as prescribed in AAR Specifications for Tank Cars, appendix M, Table M1;

$t$  = Minimum thickness of plate in inches after forming.

(b) The wall thickness after forming of the inner container heads, if flanged and dished, must be not less than specified in §179.221-1, or not less than that calculated by the following formula:

$$t = \frac{5PL}{6SE}$$

Where:

$E$  = 0.9 welded joint efficiency; except  $E=1.0$  for seamless heads;

$L$  = Main inside radius to which head is dished, measured on concave side in inches;

$P$  = Minimum required bursting pressure in psig;

$S$  = Minimum tensile strength of plate material in p.s.i. as prescribed in AAR Specifications for Tank Cars, appendix M., Table M1;

$t$  = Minimum thickness of plate in inches after forming.

(c) The wall thickness after forming of the cylindrical section and heads of the outer shell must be not less than seven-sixteenths of an inch.

(d) See §179.220-9 for plate thickness requirements for inner container when divided into compartments.

[Amdt. 179-9, 36 FR 21340, Nov. 6, 1971, as amended at 66 FR 45390, Aug. 28, 2001]

**§ 179.220-7 Materials.**

(a) The plate material used to fabricate the inner container and nozzles must meet one of the following specifications and with the indicated minimum tensile strength and elongation in the welded condition.

(b) Carbon steel plate: The maximum allowable carbon content must be 0.31 percent when the individual specification allows carbon content greater than this amount. The plates may be clad with other approved materials.